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THANK YOU!

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A special thank you from SLAPR to Tom, WAØKGU, for taking up the challenge of creating a logo for SLAPR. Tom, has a special understanding of these things. He is one of the editors of the NC-80 newsletter, INFORM. Tom enlisted the aid of Wayne Womack, also an editor of INFORM. Wayne is a commercial artist. The two of them got together to share their talents with our club.

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Thank you, Tom! Please thank Wayne.

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**SLAPR**

St. Louis Area  
Packet Radio Club





	CONTROL	
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identifies the purpose of the packet

In recent years most of the advances in the use of space for peaceful uses have been oriented to a controlled use. Although the technology is already available for popular use of space, it has been reserved for commercial controlled use. The U.N. has given attention to this injustice. I share this column with the Secretary General of UNISPACE this month. Dr. Yash Pal was one of six speakers at the UN sponsored conference on the peaceful use of space held at the McDonnell Planetarium a couple of weeks ago. Dr. Pal also presented a paper to the International Round Table on Alternative Space Futures and the Human Condition, held March 8-10, 1982. What follows is his introductory speech which is now the introduction to the report of the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE 82).

### International Round Table on Alternative Space Futures and the Human Condition.

Yash Pal

In less than a quarter century, space activities have begun to envelope the world. Remote and distant areas can be brought into communication, weather and climate can be better understood, monitored and predicted, earth resources can be studied and a framework for a new global information system can be developed. The future promises an intensification of these activities, and introduction of many new applications. And yet, there is an uncomfortable feeling that Man's life on this Earth is not becoming so much better, that the deprived are not becoming less deprived, that more effort is being spent on widening of the already established roadways than on opening new pathways in the wilderness.

The question can be asked: why should space technology be any different from other technologies invented during the last century; is it not natural that the new capabilities would be used primarily for the benefit of those who acquire them first? I dare to suggest that space represents something entirely new in human history. It is not just a new technology; it is also a new way of looking at our world. It is not only a new tool; it also suggests several new human agendas and, most important, provides the means to accomplish them.

It is understandable that the manner in which space activities are organized and managed, the priorities accorded to different uses of space, and the systems into which various elements are configured, would all be determined by the dynamics of interests and urges in the countries which



## ALTERNATIVE SPACE FUTURES

have played a leading role in the initial development of this technology. I am not convinced, though, that every choice ultimately resulting from the push and pull of corporate and national interests necessarily enhances the human condition, even in these countries. Further, since space operations have such a global quality, there might be a tendency to assume that exactly the same systems would be appropriate for all parts of the world. There is no question that the components of technology have a wide, almost universal, applicability; the same is almost certainly not true of the total systems. For example, the advanced countries, with well-developed ground segments in communication, could qualitatively alter the nature of their long distance communication opportunities by incorporating satellites working with large ground stations into their systems; on the other hand, for most developing countries, the establishment of such stations has only connected some privileged segments of society to the outside world, thereby removing them even further from their environment. One would have thought that an appropriate satellite system for these countries would have emphasized communication between a large number of small stations, thus obviating the need for a large investment in time and money on setting up a conventional communications infrastructure. This would have been a better choice for improving the human condition - to the extent that mere availability of communication can indeed improve the human condition.

There would be many new opportunities in the future. A remarkable liberating quality of the present technological age is that individual components of technology - either existing or possible - can be put together in an infinity of ways, some of which can definitely improve Man's quality-of-life. New innovations would be required, innovations which would simultaneously involve scientific, technical, social, economic and organizational considerations. I tend to believe that choices are possible and indeed mandatory.

In recent months, in connexion with preparations for UNISPACE 82, I have visited many parts of the world, including a large number of developing countries. In the process I have been struck by the relevance of a new class of space projects, which might be considered as being components of a "Tropical Connexion" in space. All parts of the Earth are not quite equally treated by a specific space station in the sky. The synchronous orbit is somewhat inconvenient if you are at the north or the south pole. Short-period polar orbits are natural for scanning the whole Earth over a short period of time, and they provide a better overlapping coverage at higher latitudes. Somehow the potentials of few-hour or short-period orbits over the equator are not being seriously considered, even though their use can be specially advantageous for a great many developing countries which happen to lie close to the tropics. Let me elaborate on this a bit, because the arguments - though somewhat sketchy - arise from a special concern for people who should be, and are not, gaining much from space.

Consider a satellite in a few-hour equatorial orbit, carrying a narrow-band UHF receiver and transmitter, a solid state memory of 10-20 Megabytes, a computer loaded with appropriate software - and the possibility of modifying that software from the ground. Such a satellite could, in principle, be developed to work as an "Orbital Postman", to "physically" deliver short messages to and from thousands of simple ground stations, within and across countries lying close to the tropics. These ground stations would store messages, with their destination - addresses. Each time the satellite passes through the coverage area of the antenna of the ground station, the station will send out, only on command from the satellite, all its messages in a "burst" and will receive from the satellite any messages addressed to it from other similar ground stations. Such a satellite might be comparatively simple and inexpensive



## INTRODUCTION

to build; its size and low-orbit will limit launch costs. Ground stations, operating in the UHF band and using simple, non-tracking yagi antennas can be far cheaper than existing stations.<sup>+</sup>

Clearly many details need to be worked out, but the implications of this for many countries are far reaching. A telephone, costing in initial investment up to three years per capita GNP of some countries, would remain a luxury for most people. Yet there are communication needs of development centres, educational institutions, field agents, administrative machinery and the general public, spread over distances which are not easy to link. Most of these links do not need the instantaneous, two-way communication capability that a telephone provides. Instead, much can be achieved - at far lower cost - through slightly-delayed, one-way-at-a-time communication. Such communication, which this "Orbital Postman" can provide, would avoid the non-existent or horribly overloaded telephone exchanges, cable and microwave links, and would thus by-pass the inadequacies of the terrestrial system to provide one type of essential communication.

At an international level, the system could provide for a horizontal communication between developing countries, essentially building a new roadway across the skies, offering direct links between news agencies of developing countries and, therefore, an important technical means to help bring in a new World Information Order; it could also help bring some content into the slogan "technical co-operation between developing countries."

It is clear that equatorial-orbit remote sensing systems would provide much more frequent revisits of the same area in tropical regions, which are often covered by clouds. Such a suggestion has been made and would exploit the special advantage of countries in these regions, being situated close to the equator.

There are two other elements of the "Tropical Connexion" that present themselves rather naturally. These are the search and rescue satellites, and navigation or position-location satellites. A repetitive encounter with the satellite every few hours is possible only at low latitudes and only with equatorial satellites, an advantage that accrues merely because the Earth spins. It would be inappropriate, to say the least, not to use this advantage, particularly when the operations of the country concerned are not that global.

One can, of course, conceive the possibility that more than one of the services mentioned above could be combined in a single spacecraft. My objective in going through this discussion was merely to underline the possibility that specific choices in space activities can be made, and that different choices would have different implications for masses of humanity. The need is, of course, to encourage autonomous decision-making while being conscious of the fact that space technology can indeed have many different manifestations in different parts of the world.

It was thoughts such as these that first triggered the idea of getting together a group of experts to discuss this theme of choices or alternatives with regard to future space activities, and the implications of these on the human condition. Thus was born the "International Round Table on Alternative Space Futures and the Human Condition." The following chapters cover the deliberations of the Round Table. It was organized as one of the preparatory activities for the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE 82), and I do hope that this small volume will serve as a useful input to the Conference.

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<sup>+</sup>Such a scheme has been proposed recently by S. Ramani and R. Miller (private communication).



	ADDRESS	
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identifies the source and/or destination station

Who are we?

The December meeting, December 27, will be SLAPR's opportunity to determine again just who we are. Election of the Executive Board will be one of two items on the agenda. The meeting will also offer the first opportunity to share first findings from early experimenting with the Beta Boards.

The December election will for  
President  
Vice-president  
Secretary/SLAPR PROTOCOL editor  
Treasurer

Nominations will be from the floor of the meeting. Please be sure that you have spoken with the nominee to assure that he or she is willing to serve the club. The vote will be by secret ballot and a simple majority will be enough to elect the candidate to office.

The new Executive Board will take over its responsibilities at the January meeting. They will serve for the entire year 1983. Come ready to elect the new leaders for SLAPR. Are your dues up to date? You'll want to be up to date so you can participate in the election.

The December meeting will also be the first meeting after receiving the Beta Boards. Since it is going to be a Christmas gift, you will want to play all you can so that you will have experiences to share with the group. You might even have a question or two to ask. You other folks who are not Beta Test participants will want to take a peek.

December 27, 1983	7:30 pm sharp
Grand Teton Room	
Deaconess Hospital	6150 Oakland



	GATEWAY	
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## PACKET SLOTS MANNED

AMSAT has two volunteers for two very important future programs in the digital communications field. First, Mr. Den Connors, KD2S, has been named PACSAT Project Manager. Den will be responsible to organize the efforts necessary to develop and have launched a digital packet store and forward satellite in the next 2 to 3 years.

Second, AMSAT's Phil Karn, KA9Q, has been named to establish a gateway station between New Jersey Packet Radio nets and AMICON (AMSAT International Computer Network) channel of Phase IIIB. Phil's enormous data handling capability places his station in a very advantageous position to act as a gateway to AMICON. Additionally, Phil is performing invaluable modeling of the Phase IIIB orbit and developing remarkably powerful tools for determining orbital maneuvers in the first hours to weeks after launch of Phase IIIB. Other AMICON gateway stations are anticipated in the Washington D.C. vicinity, the San Jose, California area, Los Angeles and elsewhere.

from AMSAT SATELLITE REPORT Number 45/46

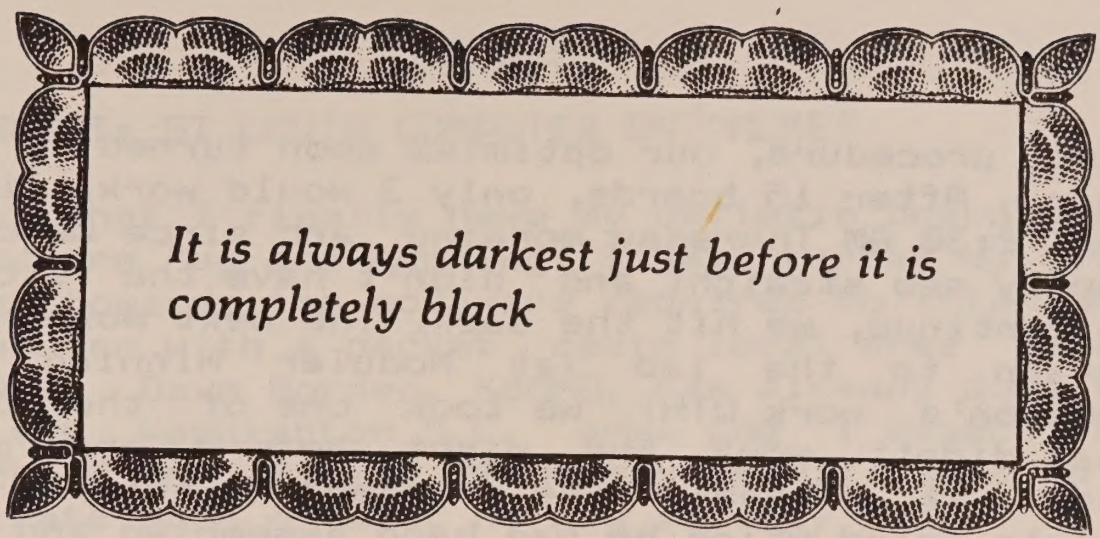
	FCS	
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## Frame Check Sequence

"I received a letter proving that someone actually reads this column. (We do too, David. ed) This person wrote and suggested that I really don't have a legal problem on 10 meters with my networking scheme as the simplex repeater could be construed as a relay and not a repeat. I wish he were right...But, alas, the FCC thinks the simplex machine is a repeater."

David W. Borden, QEX 10 November 1982





*It is always darkest just before it is  
completely black*

If anyone keeps these little blurbs we send out each month in a year or two we all may be able to look back at the episode I'm about to tell and have a good laugh....right now it's not too humorous.

I've just returned from Tucson and what was suppose to be the final integration effort to get the Beta boards out the door before Christmas. Unfortunately it did not turn out that way. I realize this sounds like a cliché but everthing was going just fine, the parts had all arrived, the circuit boards were done and two assembly outfits were stuffing and soldering the boards. We were, or so we thought, in "fat city".

On Wednesday, 8 December, we recieved our first shipment of boards from the assembly folks. I was impressed. They looked great, but as the old saying goes "beauty is only skin deep".

The boards, power supplies were checked prior to inserting the chips and the voltages were right on the money. We then inserted IC's into 19 boards and anxiously powered up our first production Beta board with a diagnostic and calibration EPROM installed. It worked like a champ. The RAM was good. It sent packets. The modem calibrated right on the money and the watchdog timer unkeyed after approximately 14 seconds. Like proud papa's, we patted ourselves on the back. Boy had we done good. We then went on to the rest of the boards to repeat the check



-out procedure, our optimism soon turned to despair. After 15 boards, only 3 would work. It was now 2:30 AM Thursday morning and since we could hardly see straight and didn't have the stomach to continue, we hit the sack. The next morning on return to the lab (at Modular Minning, Lyle Johnson's work QTH) we took one of the boards that didn't work the night before and guess what...it worked!, like a champ. We quickly took Lyle's board which he had hand assembled and had worked flawlessly and guess again....it wouldn't work, a quick check with some test equipment revealed that the signals were not getting around the board like they should, with the help of a soldering iron and a few touch ups to some suspicious traces and viola it worked again. With that Lyle, Den, and Mark Baker (owner of Modular Minning) made a bee-line for the circuit board people that had produced the boards. After some discussion one of the boards was cut in half and the plate thru holes were examined with a jeweler's eyepiece and guess what again.... the plate-thru holes were not plated properly and were cracked. No wonder the finished boards acted so strangely! With that the call went out to stop production of the assembly of boards. Unfortunately, many of them had already been completed. For the next several days all the hardy souls stripped most of the major (and expensive!) componets off the defective boards. The leads were straighten and were sorted into the original containers. The circuit board manufacturer has agreed to produce new board to replace the defective ones and should have them in TAPR'S hands by the end of December. The whole experience was very frustrating. However it could have been much worse if not detected so soon. Could you imagine the headaches we would have faced if those units had gotten out to the test sites? A lot of folks put in some long hours to rescue the project. In the short term this will mean about a 1 month delay but in the long term we hope all of you will think it was worth it.



## CONNECT: ST LOUIS COMPUTER ON PACKET

Now that I finally have my bulletin board system hardware "up and running" I have turned my attention towards the software required to interface a computer with a packet radio local area network (LAN). Dave Borden, K8MMO, has already done this in the Washington D.C. area and I expect that much of our initial efforts here will tend to duplicate much of what he has already done.

The simplest software interface will be a direct access to the computer's CP/M operating system. Anyone typing "CONNECT WD0ETZ-1" will receive the CP/M prompt "A>". At that point, the user can take full advantage of the CP/M operating system just as if he were directly connected to it. For example, the TYPE command will dump ASCII text files and both Basic and assembler programs can be written and executed via packet. The disadvantage of this type of interface is that it does not provide any sort of file protection or means of protecting the system from "crashes". Also, if a user fails to disconnect at the end of his access, then the system has no way of restarting itself for the next user.

I expect that future versions of the interface will provide several important functions:

1. Allow "connect" and "disconnect" commands to initialize the operating system or initialize a bulletin board system.
2. Provide a timer function in case someone just turns off their radio instead of disconnecting.
3. Generate a "System available" beacon when the system is idle.
4. Provide a log of user activity.

Another enhancement that I see is the ability to automatically date and time stamp files (or messages). The hardware is currently installed to do this but the software effort doesn't seem to have top priority at the present.



Obviously much software work needs to be done to build a reliable, user friendly host computer system. I am certainly open to suggestions for enhancements and offers of software help (remember, you don't need a computer to help, just a TNC with access to "WD0ETZ-1").

DISCONNECT: BILL, WD0ETZ

THE ST. LOUIS AREA DIGIPEATERDIGIPEATERDIGIPEATER

Dear Sparky,

Pete Eaton has asked me to confirm with you our intention to establish a packet radio digipeater on 147.555 Mhz.

A simplex packet digipeater is considered by the FCC to be a time division repeater and as such requires only a single frequency for operation. Consequently, we feel that it would be inefficient to place such a repeater within the duplex repeater bands as allocated by the ARRL. Groups in other parts of the country agree. Simplex digipeater activity has been established on 146.58 in San Francisco and by AMRAD on 147.585 in Vienna, Va.

The St Louis digipeater will initially operate at 1200 baud utilizing both the Vancouver and the AMSAT/TAPR AX.25 protocols. However, the experimental nature of packet radio will encourage members to experiment with other baud rates and protocols. Irregardless, our digipeater will always CW ID using the International Morse Code as required by FCC regulation.

Sparky, the SLAPR membership fully supports your activities in monitoring and controlling repeater activity in the St Louis area. It is our intent to operate our digipeater in full cooperation and coordination with your efforts. Please feel free to contact either myself, or any of the other SLAPR officers regarding any aspect of our repeater's operation.

Sincerely, Bill Reed, WD0ETZ Vice-pres. SLAPR



BETA BITS

Lyle Johnson says thanks and updates sechedule.

TUCSON AMATEUR PACKET RADIO

P.O. Box 22888  
Tucson, Arizona 85734

November 24, 1982

Pete:

Just wanted to thank you again for the tremendous help you and the SLAPR group have been to the (projected) success of the TNC Beta phase.

Please express our sincere thanks to INTERCONNECTIONS for a job well done on the layout. Their prompt service under less than ideal directions from this end saved the day for us as far as scheduling is concerned.

Also, please extend our thanks to the SIEMENS organization for the rapid turnaround on the transformers. I hope they will be willing to produce more of them for us in the not too distant future ( like late 1st quarter...)?

The parts situation will probably cause a delay of a few days, but not more. We expect to have the boards from the Assemblers (we are having two separate outfits do the work in parrallel) on the 7th and 8th of December. Then the fun begins...

Hope you enjoy your trip here to the salt mines.

73,

Lyle V. Johnson  
Executive V. P.



	GATEWAY	
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station to access long distance communications

FROM BYTE, DECEMBER 1982

BYTELINES by Sol Libes

## TAXI DISPATCHING GOING DIGITAL

The dispatching of taxis via voice radio may soon be a thing of the past. Several Canadian taxi companies have switched from voice-radio dispatching to computerized radio dispatching. The taxis are equipped with a video display and keyboard.

Here's how it works: a driver enters information as to which zone he is in or headed for, whether the cab is empty, etc. The central computer then sends a message as to where to pick up the next ride. No other driver gets the call, so no one can try to beat the cabbie to the fare, which sometimes happens with voice dispatching. With computerized dispatching, companies are claiming that they can handle as many as 500 cabs per channel whereas before the limit was about 150. It looks like the Canadians are first again at putting packet to use in everyday applications.

\*\*\*PHASE IIIB PHASE IIIB PHASE IIIB PHASE IIIB\*\*

Phase 3B needs your help.

Remember when Larry and Roy, W9MXC and W0SL, presented a program on AMSAT PHASE III? Well, the launch date is set for April 2, 1983. Are you ready for the SSC? That is, if the commercial folks don't get a-	head of us. GTE just laid out \$20 million to get a ride on AO-8. We will be ready only with some help from you. You can be a part of it. Send your check to AMSAT P.O. BOX 27 Washington, D.C. 20044
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# HAMNET VISITS SLAPR

SB: PACKET RADIO UPDATE

01-dec-82 19:38:59

FM: SCOTT W3VS

TO: ALL

Just returned from a most interesting trip to St. Louis, the midwestern home of Packet Radio! Had the opportunity to combine a business trip with a visit to the November meeting of the St. Louis Area Packet Radio Association (Club), chaired by Hamnet member Pete Eaton, WB9FLW. The St. Louis group has been active for about six months now and is playing a major role in assisting the Tucson Packet Gang with their Terminal Node Controller project. Pete and his crew were responsible for the actual circuit board layout for the Tucson TNC. The board is now completed and in the final stages of being assembled. The software for the TNC (written in UCSD PASCAL by the way) was developed by a similar group in the Los Angeles area and appears to be a very impressive package. This initial level of software will support both the existing "Vancouver" protocol along with the newly defined AMSAT/TAPR AX.25 protocol. The boards and software will be integrated together in early December in Tucson. Shortly thereafter, the initial shipments of these "Beta" boards will begin to the nearly 180 amateurs who signed up to lead the way into the new world of Packet Radio. Those of you who are interested in following the progress of this test effort would find the St. Louis club's newsletter of real interest. It is published monthly and is available for dues of \$10.00 (\$12.00 for 1983) to Ed Dillon KA0AYD, 14942 Country Ridge, Chesterfield MO 63017. In the meantime, Pete will be keeping us updated on the status of this pioneering work with Packet Radio. These are exciting times with the "coming together" of the digital/computer/radio communications disciplines that Packet Radio provides. Stay tuned to Hamnet for Packet Radio information.



FLAG
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identifies the beginning or the end of a packet

This column is being written the night before the big trip to Tucson to wrap Beta up. I'd like to take this opportunity to again express my thanks to all of you who have supported not only the Beta effort in Tucson but also SLAPR during the last six months. As with any project of this size there have been problems and your understanding during the frustrating delays is very much appreciated. I think it is appropriate at this time to refresh our memories on the goals of Beta so we are in the right frame of mind when playing with our new toys during the Christmas holidays. The folks in Arizona have put 100% into this project, the least we can do is abide by there wishes for accurate and complete feedback to their efforts. Remember when Beta is complete, the entire project will be released to the general ham population for their use...put yourself in there shoes so that they may enjoy this mode with a minimum of hassel.

### BETA TEST GOALS

The specific goals of Beta Test include:

- 1) Testing the hardware. Beta Test will provide a wide variety of typical Amateur environments.
- 2) Testing the protocol. Not only must the TAPR protocol work well, but compatibility with the Vancouver protocol must be demonstrated.
- 3) Interfacing the TNC to a variety of radios. The radios in common use are not all represented in the TAPR group.
- 4) Interfacing the TNC to a variety of personal computers and terminals.



- 5) Evaluating the TNC documentation. Are the manuals clear and easily understood? Is the information contained in them accurate and sufficient?
- 6) Document any problems or suggestions, fill out a questionnaire, and give it to the Site Coordinator.
- 7) Exercise the TNC as much as possible. This is the only way problems will be found. Try "normal" operation, "abnormal" operation, and anything else you can think of. When fixes to problems are provided, verify the fix.

8) HAVE FUN!

That's it gang. Have a very Happy Holiday  
and see ya on the network,

73,

Pete

\* \* \* \* \*

### 1983 DUES ARE DUE

You will all remember that SLAPR dues were originally set at \$10.00 for the experimental period of six months, July to December, 1982. At the meeting of the Executive Board on November 6 it was voted to set the 1983 dues at \$12.00. It is the hope of the Executive Board that we will be able to operate within that kind of budget until further club projects require a heavier load. In order that we are able to keep things flowing, it is asked that you send your check, made out to SLAPR in the amount of \$12.00, to KA0AYD, Ed Dillon at 14942 Country Ridge, Chesterfield, Mo. 63017. Keep those checks and letters coming. We want Ed to be able to report to the December club meeting that we have 100% paid-up membership.



SLAPR PROTOCOL  
ST. LOUIS AREA PACKET RADIO CLUB  
1309 GLOUCESTER DR.  
EDWARDSVILLE, IL 62025

\*\*\*\*\*  
\* THE GATHERING PLACE \*  
\* 147.555 \*  
\*\*\*\*\*

NEXT SLAPR MEETING  
ELECTION OF OFFICERS  
7:30 PM ON DECEMBER 27, 1982  
GRAND TETON ROOM, 7TH FLOOR  
DEACONESS HOSPITAL  
6150 OAKLAND, 40 AT HAMPTON  
ACROSS FROM FOREST PARK  
ST. LOUIS, MO

Frank Magnuski  
311 Stanford Ave.  
Mendota Park, CA.  
94025

